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Lower Mainland Regional
Planning Board of British
Columbia
Countryside to suburb.

SUPPLEMENTARY STUDY

3

TO LAND FOR LIVING

Countryside To Suburb

LOWER MAINLAND REGIONAL PLANNING BOARD OF B. C.

THE LOWER MAINLAND REGIONAL PLANNING BOARD OF B.C.

The Lower Mainland Regional Planning Board of B.C. consists of representatives of the municipalities and unorganized areas of the Lower Fraser Valley with jurisdiction from Vancouver to Hope. It is authorized and governed by the Municipal Act, by which it is charged with the duty of preparing plans for the physical development of the Region. It is financed by its member municipalities and the Government of British Columbia through the Department of Municipal Affairs.

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Countryside To Suburb

LOWER MAINLAND REGIONAL PLANNING BOARD OF B.C.

May 16th, 1963

To the Member Municipalities of
The Lower Mainland Regional Planning Board

Ladies and Gentlemen:

I have pleasure in sending you another study contributing to a Regional Plan.

It is quite apparent that this region can no longer allow suburbs to develop without at the same time making some preparation for the services which they need. The question is not a simple one, but is one of great significance to every municipality, especially those which have not yet experienced much urban development.

This study is based on the experience of those who have already had to deal with the problems of residential development and I hope that their experience will enable others to avoid unnecessary repetition of these problems.

I commend this study to you both for reading and for reference.

Yours sincerely,

W. R. Jack

W. R. Jack, Chairman

THREE ASPECTS OF THE
SUBURBAN RESIDENTIAL
DEVELOPMENT PROCESS:

- Current land development methods
- Minimum standards of services for the Region
- Reducing lot servicing costs

Introduction

In the course of preparing the report on residential land development, Land for Living, it was found necessary to study certain questions in some depth. This was done in a series of supplementary studies, of which this is one.

Countryside to Suburb is concerned not with the dwelling as such, but with the facilities which serve it and with the neighbourhood of which it is part. Particularly it is concerned with standards for these facilities and with direct ways in which service costs can be cut. Broader questions such as controls of the overall land supply are dealt with in Land for Living.

In keeping with its purpose as a regional study, this report, of necessity, generalizes about many matters which in practice vary considerably from area to area. It does not do so, however, in any spirit of dogmatism and we trust that the reader will appreciate and accept the need for it.

To the extent that this report is a composite of many people's experience and views we are indebted to a number of land developers, mortgage lenders and municipal engineers and assessors as well as to our faithful group of planner advisers - municipal, consulting and academic. To them all we give thanks for their support and assistance.

The general in charge of the operation was Mr. T. Rashleigh, who has succeeded in producing a recognizable and valuable horse in circumstances which, according to current humour, should have produced a camel.

James W. Wilson,
Executive Director

COUNTRYSIDE TO SUBURB

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District parks, equipped for organized sports, should be 30 acres in size and 2 miles apart.

x. Fire Protection requires that the running distance from house to fire hall be 2 miles for an engine company and 3 miles for a ladder company. Where the density is low, the distance for both is 4 miles.

xi. Other public and private services. Several other neighbourhood services should be considered when a development plan is prepared. [See main text]

(3) Possible economies in servicing:

Under present development methods and conditions, only relatively minor reductions below present servicing costs are possible. As for the need for low cost development, single family housing permits only a partial solution: terrace housing and other forms of multiple family housing have a better potential.

(4) Future development must be a well organized process if suburban districts are to be as economical as possible - for the average home buyer, for the low income buyer who now must go far out of town to find a cheap lot, and for the municipality which must maintain and in part provide the services -

- Subdivision regulations must be flexible enough that the subdivision designer can introduce layout economies and take advantage of particular site features.
- The neighbourhood must be planned at an early stage of actual development, so all essential services can be provided for, and fitted together efficiently and economically.
- Municipal services [e.g. sewers, roads and water] which are best designed to serve large areas must follow a plan based on future needs and on sound engineering and planning principles. Greater economy can only be achieved by more precise municipal regulation of development than now occurs.

I: THE SOCIAL OBJECTIVE OF NEW LAND DEVELOPMENT

In the next 20 years something like 150,000 more single-family houses are likely to be built in the Lower Mainland. This report deals not so much with these houses as with the facilities which will serve them and the quality of the neighbourhoods which they will form. Suburban development cannot be merely a matter of laying one house alongside another; much more is involved, because, for most people, a move to the suburbs is not a move to the country: the suburban resident with an urban job wants and eventually demands urban services and facilities.*

The modern suburban neighbourhood is a group of homes sharing a set of common services - a network of roads, a public transit system, water and sewer systems, parks and schools, stores, community centres. The need for these services is now being recognized, but the need to determine in advance how they relate to each other and how the services of one subdivision link up with those of another is not yet generally accepted. When it is, we are more likely to produce more livable neighbourhoods which are not a financial burden on the municipality.

Economy in development is particularly important in housing persons of average and below-average income. In the new housing field the task is to keep costs down without prejudicing the standards of service or placing a financial liability on the municipality.

The social objective of suburban residential development can therefore be summarized as the creation of adequately serviced urban neighbourhoods which meet the social needs of the residents, and are economic for both them and the municipality.

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*See The Urban Frontier, Part I, The Lower Mainland Regional Planning Board, 1963.

II: THE PRODUCTION OF RESIDENTIAL LAND

A generalization

Over the past 5 or 10 years the price of land and the quality of servicing have fluctuated widely, creating a mixed brew of prices which only recently has started to settle. Consequently it is difficult to generalize about the cost of land, either raw or serviced. Nevertheless, the experience of several developers and analyses by municipal assessors indicates that "average quality" raw land destined for an "average quality" of house has sold in recent years for $2,000 to $4,000 an acre, that is, $500 to $1,000 a lot at a density somewhat higher than 4 lots per gross acre. The most typical raw land price is between these limits.

At the other end of the process, residential lots, again of average calibre, seem to have ranged from $2,700 to $4,000 or $5,000. The top limit represents lots enjoying advantages of location or amenity, while lots selling below $2,700 are likely substandard in some respect, or sold under pressure.

Oversimply, the conversion of raw land to a finished lot can involve several kinds of costs:

- of land used for non-residential purposes [roads, parks, etc.]
- of surveying, engineering and planning
- of the installation of services
- of interest on capital loans
- of taxes on the land
- of real estate commissions
- of promotion, administration and other overheads
- of profit;

- all to be covered by the price of the lot. But these components vary considerably in importance, from time to time, from place to place and between types of developer; and secondly, market conditions governing the sale price include yet other influences. Thus price setting in the market is a very complex process, which requires detailed discussion.

Local and site determinants

The price of raw land destined for residential use depends on many things - its distance from a commercial centre, the availability of local community services [schools, shops and public transportation] and the amenities of the site itself [view, size, and tree growth, for example]. Many suburban areas rate well on the first two qualities, but relatively few offer exceptional amenities. Those that do, draw premium prices and usually are in strong demand. For similar reasons of demand far outstripping supply, the few vacant lots within the City of Vancouver, being central, bring a higher price under competitive bidding than comparable lots further out. Lastly, another form of scarcity tends to occur when only a few undeveloped lots remain in a new subdivision. This results, presumably, from the stability and character which the area has acquired and the community facilities that have been built.

However, market conditions, which determine the value of the property, themselves fluctuate considerably. A period of stable land prices ended about the mid-1950's and was followed by several years of dramatic price increases. Since the peak of that boom, around 1958-59, prices have once more stabilized. That is, although land prices have increased in, say, Burnaby since 1958, this is a result of available land in that municipality becoming scarce; land now in newly developing areas is about the same price as in similar areas 5 years ago. Nor has there been any increase in prices in areas of speculation beyond the edge of existing development; if anything, these speculative land prices have dropped since 1958.

The selling price of land can also be influenced by conditions peculiar to a transaction. A developer who has held land longer than he expected will try to recoup his extra expenses. Marginal developers working under boom conditions will pay for the privilege of long options or low down-payments by committing themselves to a heavy final purchase price. On the other hand, land is sometimes put on the market by small land holders not fully aware of prevailing market conditions: a high price will meet buyers' resistance, but a low price may not become apparent to the seller until too late.

Irrational determinants

Both the demand for raw land and the psychological "atmosphere" in which the land market operates are created largely by the demand for housing. Stimulated by an expansive economy and more specifically by a ready supply of cheap mortgage money, a heavy demand for housing excites the whole building industry, encouraging more risk-taking in expectation of substantial profits. In such a market, even less suitable land, including land well beyond the area of immediate development, acquires a heightened value. The conditions which encourage exaggerated evaluations may be relatively short-lived, but the resulting high values tend to be carried over by owners who have bought expensive land but not been able to sell it.

A major factor encouraging a rise in prices has been the tastes and ignorance of the novice home buyer. Pushed by the high cost of home purchase in the central areas and pulled by offers of a low down payment and monthly charges perhaps lower than rent; with, as well, few alternative kinds of housing available, the prospective buyer tends to seek his first home in the suburbs. Besides, these areas offer a new house in a setting as nearly rural as one can expect near a large city. But this type of buyer has not been very discriminating about certain things. He is more preoccupied with the down payment and less aware of what he can get for his money. Dazzled by gimmicks, he can be quite unaware of the future neighbourhood services he will require. Five or six years ago, when this type of demand was strong, a developer could pay $800 a lot [i.e. $3,000 an acre] for land, put in $600 worth of services to meet low municipal requirements and sell it for $2,000 or more.

Under a tighter market, however, the home buyer seems to have become more discriminating and demands more features, while at the same time he resists paying more. And at all times, of course, there are limits to what the buyer with average income can pay. This has resulted in a current ceiling price of $15,000-$17,000 on homes built in moderate income districts. Also the shrunken market includes buyers prepared to shop around for features such as sidewalks, curbing and ornamental street lighting. In the competition to provide these services, there is pressure to reduce the profit not only on the finished product but also on the cost of the raw land.

Governmental influence

Governments can exercise considerable influence over land costs. The raising of the level of services required under municipal subdivision regulations has substantially increased their cost, in some instances from $600 to over $2,000. This may have eliminated some potential buyers, but it has also created a back pressure on raw land costs.

The effect of municipal regulations and competition on land prices was illustrated by one assessor as follows: under the relatively low standards of services common in suburban municipalities five or six years ago,* a developer would often aim to put a lot on the market for $2,500. To do this he

would have to pay 1/3 for services
could pay 1/3 for the land
and still make 1/3 profit

If the standard of services is raised their cost rises; but if the available market price of the lot does not rise proportionately, either the buying price of raw land or the developer's profit must be reduced. If, for example, the market price of the serviced lot rose to $3,500 and of this

50% was needed for services
he could pay only 25% for the land
if he wished to make 25% profit†

If service costs increased but the market price for the finished lot stayed at about its former level, the raw land component might be so low that owners would not sell.

Higher taxes may force developers to put lots on the market at close to cost in order to relieve their tax burdens. For instance, some developers who rushed to register their subdivisions before servicing requirements were raised, found

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* One suburban municipality up to 1958 required an 18 foot wide blacktopped road, ditches and piped water. After 1958, the required services included 26 foot wide road pavement, curbs, storm sewers, water, a sidewalk on one side of road, street lights and landscaped boulevard.

† Real Estate and Business Trends, 1961, Vancouver Real Estate Board, [p. F-7], illustrates the depressing influence of increased services on raw land costs. No sewers and few services were required in Richmond before 1959:

"Municipality of Richmond - Land Values

Residential Acreage

1954 - $1,000 per acre
1958 - $2,200 to $5,000 per acre
1959 - Requiring sewers in addition to other services - $1,000 to $1,200 per acre. Not requiring sewers - $2,200 to $5,000 per acre."

required services

themselves with more lots than they could sell, and mounting taxes on those lots. But this result is not inevitable, for the land owner may be able to hold on in anticipation of an eventual price rise or may consolidate his land temporarily for tax purposes.

A third government influence on land prices has not been too effective. C.M.H.C's. lending policy, which is guided by the standard of services installed and an appraisal of the conditions of the development, has raised standards and thus lowered raw land costs only to a limited extent because the Corporation insures only about a third of the mortgage money in the Vancouver region. However, many of the private financial sources also protect their investments by insisting on a high standard of services. Low cost NHA loans for municipal sewage treatment plants also helps keep lot costs down.

One means by which government could influence land prices has not generally been applied in this Region: there have been no Federal-Provincial Land Assembly Schemes. Also, although several municipalities own quantities of land, their disposal policy has not recently been designed to influence the market.*

In summary, municipal influences on land prices have been largely the side effects of policies implemented for quite different purposes.

Finance costs

The amount and cost of money needed to acquire land and install services varies considerably. In past years when standards were much lower than now, perhaps $600 to $700 per lot would be spent on services and usually their installation would not be a lengthy operation. Somewhat similar capital requirements still attach to the operations of small builders who work on a few lots at a time. In contrast, the large developer must now make heavy capital investments. He may have to hold land for 18 months before it is ready for sale, and with high servicing standards to meet he may spend $1,500 to $2,000 on services and overhead costs for each lot.

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*North Shore municipalities and New Westminster sold land after the war at low prices to stimulate development.

Conditions and methods of financing vary so much that it is nearly impossible to generalize on its importance for development: the developer may or may not have capital of his own; he may or may not sell his houses promptly; interest charges may vary somewhat from one developer to another; and there are different means of optioning land, of selling lots, of posting municipal performance bonds, of making arrangements with contractors - which influence the costs of the development.

Current conditions

During the boom years of 1957-59, suburban raw land sold for $2,500 to $4,500 an acre, or $600 to over $1,000 a lot. Servicing of the land with 18 or 20 feet of blacktop road, water and a ditch cost $600 to $800 a lot. The resulting lot brought $2,000 to $2,500 on the market and a profit of about $800.

More recently, there have been fewer home buyers and these are more cautious, knowing and demanding. The supply of urban lots has also diminished as municipalities and finance agencies require that a higher level of services be put into the land. Because of this higher level the price of the raw land component of the lot has dropped: acreage now sells for from around $1,500 to $3,500 an acre, or $370 to $850 a lot. Where 28 foot blacktop road, curbs, gutters, sidewalks, and storm and sanitary sewers are required, services can now cost $1,500 a lot. The total cost thus reaches $1,900 to $2,400. In addition, the large scale developer must assume heavier financial and overhead burdens for a longer development period than he used to. But while these costs have risen, the present market has not allowed sale prices to rise proportionately.

Developers, in other words, are having to cut both raw land costs and profits. There is no room for transactions in which land passes through several hands, each hand taking a profit or commission. Production must be geared closely to prevailing demand: one developer generalizes that an empty house costs $150 a month in maintenance, interest, taxes and vandalism; after six months vacancy he is losing money. Economic pressure permits only one profit, collected when the home buyer accepts the front door keys. Generally, larger developers are starting to follow mass production methods, common elsewhere, which judge the market price obtainable for the finished home-on-lot and plan a package product accordingly.

However, the workings of the housing and land market are not as clear cut as this may suggest. The loose, sprawling development typical of the Vancouver area has left many gaps and odd parcels of land which do not attract the large developer. Under these circumstances, small builders can still compete effectively. They may arrange not to pay for the lot until the house is sold. They may be able to avoid paying for total services and usually do not invest heavily in service installations. Their overheads are small and they can keep labour costs down by working for themselves. While these odd parcels are available and these builders can compete, the future of the home building market is difficult to predict.

Will more logical growth increase lot prices?

The unstable conditions of the past produced land which was quite costly despite its substandard services, and it does not seem desirable from any but the most speculative point of view to return to those "old days". Instead, a more stable situation should be sought in which supply is more closely related to demand and serviced land of an adequate standard is produced at reasonable cost. To achieve this, new growth will have to be limited to areas "next in line" for development. Would this raise lot prices?

Certainly it would remove at least some of the cheapest lots from the market (1) because the lowest priced land is in the outer fringe areas* and (2) because the servicing component of lot costs would be increased substantially. This means that some people may not be able to buy lots; for them, public land assembly projects or new financial arrangements for the purchase of older housing are possible alternatives.

But the well serviced suburban lot now being produced would probably not rise in price. In the 1957-59 period when it was possible to transform acreage cheaply and easily into salable lots, the heavy demand encouraged the expectation that almost any kind of land anywhere in the metropolitan area had immediate residential potential. But as and where high servicing costs were introduced, both raw land prices and profits were forced down in order to keep prices below the market ceiling price; land costs became a smaller fraction of the final lot price; and a profit could be realized only after time and money had been spent on servicing the lot. Thus, raising servicing standards does not, in itself, increase lot prices. Moreover, a profit can then be realized only after time and money has been spent on servicing. This establishes a logical pattern of raw land values, based on the relative ease with which a parcel can be serviced, especially with sewer and water: land with immediate prospects of being serviced has a relatively high value; at the other extreme, land not likely to be serviced for many years has a value based more on its non-residential usefulness. Land will rise in value only as its prospects for servicing improve.

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*See Dynamics of Residential Land Settlement, The Lower Mainland Regional Planning Board, 1963.

The more important factor determining lot prices is the supply of serviced land. A rise in demand above the available supply will increase lot prices until supply catches up, but there is a maximum or ceiling price, set by what the purchaser can pay, which can rise only if the buyer has more money to spend or if financing methods are adjusted to lower his mortgage payments. Lot prices normally do not drop very far either, because the supply of fully serviced land is not permitted to rise far above demand: developers time their servicing program so it keeps just ahead of demand so they keep carrying charges on servicing costs to a minimum, and in this way, the supply-demand ratio and the price of serviced land is kept fairly stable. Interestingly, any poorly serviced land which is permitted to be sold as lots seems not to undersell the serviced lot to the extent that might be expected; it has a higher raw land value* which brings its lot price close to that of the better serviced lot.

In summary, then, lot prices will increase as a result of confining the area open for development only (1) if the standard of required services is so low [especially if sewer and other trunk facilities are not required] as to give almost all raw land an immediate development potential, or (2) if the supply of serviced land is cut too close to or below demand. We have referred to only one method of limiting the area of development - by requiring full urban services - but there are others. Whatever action is taken, we believe that the amount of vacant residential land available for building can be reduced substantially below the current amount [which is as much as all occupied land in the metropolitan area†] without raising lot prices significantly.

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*See second Footnote p. 7

†See Dynamics of Residential Land Settlement

III: A MINIMUM STANDARD OF SERVICES IN SUBURBAN NEIGHBOURHOODS

While minimum house construction standards are now well accepted, it is still possible for a new house to be built in an area where little attention is paid to the supply of water, the disposal of sewage and garbage, the condition of streets, the availability of parks, schools and other community facilities. Surely this is inconsistent.

This criticism applies not to the farmhouse or the country home on extensive acreage but to the typical suburban house on its 7,200 square foot lot. Especially when one of a group, a lot of this size cannot meet the sewer and water needs of its occupants: moreover, the occupants of these homes are not country people; they want urban conveniences - nearby shops, paved streets, clean sidewalks. The need for these services may not be apparent in the early days of development when houses and groups are scattered, but sooner or later the once rural area becomes part of the city, requiring city services.

What kind and calibre of services will meet the everyday needs of suburban areas? What should new neighbourhoods offer prospective residents? We shall distinguish between

Basic household services: services basic to normal operation of the suburban house;

Street services: the street itself and the services alongside and under it;

Neighbourhood and district services: the wide range of institutions and operations, public and private, located in suburbs to serve suburban residents, especially those public services which should be planned by the time subdivision is underway.

The standards for these services, outlined below, were arrived at by applying generally accepted criteria to the conditions of the Lower Mainland. They are believed to be *minimum* standards, although it is recognized that it is difficult to lay down a set of urban services as being absolutely minimal. Some things are essential; others could possibly be modified if it were demonstrated that health or life would not be endangered, or if the municipality's maintenance costs would not be higher.

Basic household services

Water supply and distribution

In few parts of the Region can houses in a sizable urban subdivision rely on individual wells for their water supply, and indeed this is rarely considered. Urban development normally depends on an "outside" source - lake, river, stream or community wells - and a distribution system to carry the water from the source to the tap. Small developments can rely on local sources and distribution systems tailored to limited areas, but as development continues, this patchwork approach becomes increasingly uneconomical. Such parochial systems are not viewed with favour by the Public Utilities Commission, which must approve all water supply schemes.

In determining need, not only future demand but also the standards laid down by the Canadian Underwriters' Association for fire protection [particularly their requirement that mains be at least 6" in diameter] should establish the dimensions of the system.

In 1959 a study of water supply conditions in the Fraser Valley area* reported an ample *supply* of water, now and in the future. The problem, "seems to be to select the most economic source [or sources]of supply, and to arrange for

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*Western Development and Power Limited. *A Preliminary Engineering and Economic Study of Water Supply in the Fraser Valley*, June 1959; Summary Report, September 1959.

distribution systems".* At present the Greater Vancouver Water District supplies water as far east as Haney in Maple Ridge and Fleetwood in Surrey; the Elk Creek Waterworks supplies the Chilliwack City area; and small local systems serve White Rock, Langley City, Aldergrove, the Abbotsford-Clearbrook area, and the Mission City area. Parts of the smaller systems, having been designed to meet a rural demand, are inadequate to serve continuing growth. The rest of the Region, now largely rural and dependent on individual wells, requires study to determine how urban development can be supplied economically.

Disposal of sewage

In rural areas human and domestic wastes can be disposed of satisfactorily by septic tanks, but these are inadequate once development approaches urban densities on any scale. Approximately 80 percent of the residential area of the Region is on soils unsuitable for septic tank operation, being either dense with slow percolation rates, with high ground water table, or with bedrock at or close to the surface permitting no downward percolation.† Because of these hard facts of geography, residential development on septic tank in the Lower Mainland Region has been plagued with septic tank failures with consequent nuisance and health problems. Because of apparent reluctance to accept this fact, it is worthwhile quoting other authorities on the point:

The Rawn Report for the Greater Vancouver Area:

> Large portions of the Greater Vancouver Area [and of the Lower Mainland as a whole] are covered with relatively impermeable surface materials. Individual

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*For smaller communities especially, the Provincial Comptroller of Water Rights favours a system that involves charges to the resident user of not more than $5.00 a month.

†Based on the description and delineation of soil types in Surficial Geology of Vancouver, New Westminster, and Sumas Map-Areas, British Columbia. J. E. Armstrong, Geological Survey of Canada. Department of Mines and Technical Surveys, Ottawa. Papers 55-40, 57-5, 59-9, and Map 53-1959.

> septic tanks to serve the homes and businesses in such districts sooner or later become unsatisfactory, unhygienic and sources of public nuisance. For that reason public sewerage becomes imperative and must be provided as soon as the population density becomes sufficient to warrant the expense.*

The opinion of the Director of the Division of Public Health Engineering, B.C. Department of Health:

> Under the conditions prevailing in most of the Lower Mainland, septic tanks are no longer satisfactory for a community of 1,000 people once a density of 4 persons per net residential acre is reached - about one house per acre. [A built-up subdivision density is four to five houses per acre.] In a larger community, the "danger level" density is lower, perhaps two or three people - less than one average household - per acre. Once this point is reached, the provision of sewerage has to be considered an eventual necessity.†

For several years health authorities in the Lower Mainland have warned about conditions in the Region.

In 1958 the Director of the North Fraser Health Unit:

> There have been quite a variety of communicable disease problems during the past year . . . a high incidence of minor illnesses . . .
>
> These outbreaks bring up the whole question of sewage disposal. It is our belief that the septic tank is well nigh obsolete in centres of population, as it is not made to cope with the amounts of water now used domestically unless exceptional soil conditions exist . . . ultimately they give rise to problems . . .
>
> At the moment we have many problems with large numbers of malfunctioning septic tanks . . . which cause continuing pollution to ground water and ditches and as long as these conditions exist so will our communicable disease problem and doubtless get worse as the population increases.

---

*Greater Vancouver Sewerage and Drainage Survey, Sewerage and Drainage of the Greater Vancouver Area, British Columbia, 1953, p.3.

†Paraphrased from letter by the Director to The Lower Mainland Regional Planning Board.

The 1962 Annual Report of the North Fraser Health Unit:

> A preliminary report on enteric diseases in sewered and non-sewered areas in Haney and Mission . . . indicated a much higher incidence of enteric diseases in the non-sewered areas than those serviced by sewers.

Newspaper items have supported these warnings:

Ladner Optimist, October 22nd, 1959:

> Delta Municipal Council was startled . . . to learn of a serious health hazard in one of the newly developed areas of North Delta. Improper drainage resulting in flooded out septic tanks has reached emergency proportions, according to a delegation of citizens.

Vancouver Sun, February 23rd, 1960:

> Right now effluent from . . . inoperative septic tanks [in a Coquitlam subdivision] bubbles out of the ground every time they flush a toilet or empty a drain . . . Because of the health hazard, further occupancy permits are being refused by the municipality until the situation improves.

New Westminster British Columbian, March 22nd, 1961:

> Dr. H. K. Kennedy, medical director of the Boundary Health Unit, said today that something will have to be done about the sewage problem in the Whalley area or further development there will have to be stopped ". . . we've reached a point where it could become a dangerous spot to live . . . Effluent from something like half the homes and three quarters of the businesses runs directly into the ditches . . ."

According to a Regional Planning Board survey:

> In nine new developments without sewers, located in six municipalities, 24% of the residents interviewed complained of difficulties with their septic tanks. None of these subdivisions were registered earlier than 1953 and some are considerably newer.

As more development takes place it is reasonable to expect a steady increase in the number of households experiencing such difficulties.

These circumstances have already brought about one very important step. In 1957 a report by the Central Mortgage and Housing Corporation* drew attention to a statement by the National Research Council that health officials across Canada unanimously recommended restriction of septic tank systems in urban or community developments. C.M.H.C. later announced that normally it would no longer underwrite or grant any N.H.A. loans on unsewered housing.

Thus, federal housing policy, health authorities and the actual experience of the region, all support the conclusion that urban housing must be sewered to ensure the comfort and safety of its occupants; the septic tank, except in completely rural circumstances, is not good enough.

Sewage must be collected from the individual houses and then transported to a place for safe and inoffensive disposal. Treatment can be provided in several different ways. One approach treats sewage on a local, small-scale basis, by means of a lagoon or a small "package" treatment plant. But as development increases, such small systems become overloaded, inefficient and uneconomical, and eventually they must be incorporated in a system designed to serve a whole district.† In the long run, the most efficient method of sewage treatment is a system designed to serve a relatively large district and capable of extension.

At present, the Lower Mainland is by no means as well served by sanitary sewers as it is by public water systems. The Greater Vancouver Sewerage and Drainage Board takes in Vancouver, Burnaby, Coquitlam, Port Moody and West Vancouver and the University Endowment Lands. New Westminster and Richmond have sewerage systems, and small parts of Delta, Surrey and Port Coquitlam are sewered. White Rock, Mission City, Chilliwack City and part of Chilliwhack Township also have sanitary sewers. Elsewhere there are no public sewer systems of any size.

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*Sewerage Service for Urban Housing in Canada, pp. 1-2. This report pointed out that fewer urban houses are sewered in B.C. than in any other region of Canada.

†Recent decisions by the Public Utilities Commission suggest that this body does not favour small "package" installations serving individual subdivisions.

Utilities

Electricity, gas and telephone are available to most houses in the urban area.

Street services

Streets

Deciding on reasonable minimum standards for street pavements is not easy, for there are no clear-cut limits at which the inconvenience or threats to health and safety become serious. It is fairly clear, however, that most residents feel that paved streets are important,* and they are good, maintenance-wise, for the municipality.† The street width required depends on the class of road:

> Collector Streets carrying traffic within a subdivision to a thoroughfare need 2 moving lanes, 2 parking lanes: total width - 34-36 feet.
>
> Local Streets need 2 lanes for traffic, 1 parking lane: total width - 26 feet. [The provision of only one parking lane implies that parking will not reach a point where it seriously obstructs traffic.]
>
> Loop Streets and short cul-de-sacs can keep to a 20 foot width.

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*See The Urban Frontier, Part I, The Lower Mainland Regional Planning Board, 1963. In this survey of suburban homes, over three-quarters of the people living in subdivisions with unpaved streets complained about street conditions.

†Engineers in Surrey and Richmond state that the maintenance cost of a gravel road is about three times that of a well-constructed paved street, which the municipality eventually paves anyway.

Curbs and gutters are justified where a storm sewer is installed; they also reduce road maintenance by strengthening the road edge. They can be eliminated if higher sewer and road maintenance costs are assumed.

Sidewalks

It is ironic that while an ample road is usually provided for the automobile, the pedestrian needs of the suburban resident may be neglected, resulting from time to time in a child being killed on the road edge. The need for sidewalks depends somewhat on local circumstances. Two standard references* favour one sidewalk on minor streets and one on each side of major residential streets "which serve as collectors of traffic from minor streets, as approaches to the schools, bus stop, shopping centre and other focal points of the community, and where densities exceed five families per net acre." Sidewalks are not regarded as essential on cul-de-sac streets.

Storm sewers

Storm sewers are difficult to classify as essential or optional. They are essential only where surface drainage systems cannot adequately carry off average volumes of surface water. Less important, they create a neat, well defined curbline. They also offer a saving in land over the three feet or more required for a ditch and are less costly to maintain, though more costly to build than open ditches.

To some they are so advantageous as regards maintenance costs or amenity value as to be justified in nearly every instance, but the best evaluation seems to be that storm sewers, being costly, should not be a standard installation;

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*The Community Builders Handbook, Home Builder's Manual.
[Note: These are developers' handbooks, not municipal manuals.]

rather the need for them should depend on an engineering evaluation of drainage conditions and requirements of the subdivision layout.

Street lights

Street lights at major intersections are essential safety items.

Other street services

Several other features are frequently installed during initial development of an area, but not all can be regarded as a standard requirement. The hurricane in 1962 pressed the argument for underground wiring for hydro and telephone facilities, but if development costs are to be kept down it could be argued that the extra expense may yet be too high.*

Street name signs are important in new districts.

The preservation of natural features and trees is important, but this is a concern of good subdivision design, not the standard of service, and the simple replanting of boulevards is not a legitimate essential.

Road allowance

The road allowance width most frequently required for local residential roads is the magical chain length of 66 feet, even though the customary pavement width of 28 feet leaves a 19 foot wide strip on either side for sidewalk and utilities. [See page 23]. Surely it is undesirable to anticipate that streets now built for local residential use will some day become thoroughfares. If the street system and underground utilities are properly planned, the road allowance width can be set by the intended function of the street:

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*One North Shore municipality states that underground wiring costs $250-$280 a lot including decorative street lighting. However the cost of underground wiring has been dropping and it could become an economic alternative to above-ground wiring, especially with the maintenance economies it offers.

> Local Streets: 50 foot allowance required: 26-28 feet of pavement, leaving boulevards of 11-12 feet for sidewalks and utilities [Fig. 2A. If ditches instead of storm sewers, layout is as in Fig. 2B].
>
> Collector Streets: 58-60 foot allowance required for 34 foot pavement and 12 foot boulevards [Fig. 3 shows a simple layout; more elaborate versions are possible].
>
> Cul-de-sac, Loop Streets: 44 foot allowance required for 20 foot pavement, and 12 foot boulevards [Fig.4].

Neighbourhood and district services

The services discussed so far serve residential properties directly, whereas the following serve the residents as a whole, and perhaps because the residents do not arrive until later, the need for these services tends to be ignored during development. Schools, parks and fire stations are essential services which require well located sites if they are to serve the neighbourhood properly.

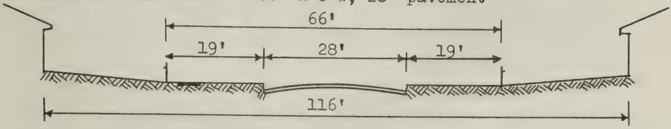
School sites

Schools must be of a size that can meet educational requirements and also be built and operated economically. The residential area served by the school is limited by the distance pupils should travel between home and school. These are the factors determining the location and size of school sites.

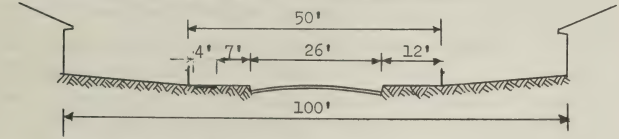
Elementary schools. While the Department of Education's School Building Manual states that "a minimum of two classrooms constitutes a satisfactory [elementary] educational unit", in urban areas much larger schools are necessary. Assuming a minimum of one room per grade, an elementary school

RESIDENTIAL ROAD ALLOWANCE WIDTHS

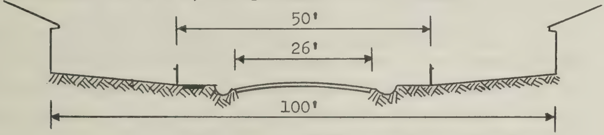
1. TYPICAL EXISTING LAYOUT 66' R-O-W, 28' pavement



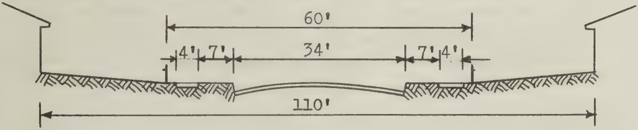
2a. LOCAL STREET 50' R-O-W, 26' pavement with curbs



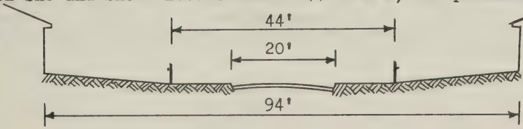
2b. LOCAL STREET 50' R-O-W, 26' pavement with ditches



3. COLLECTOR STREET 60' R-O-W, 34' pavement with curbs



4. CUL-DE-SAC and SHORT LOOP STREETS 44' R-O-W, 20' pavement



should have at least seven rooms,* will handle by Manual standards, from 230 to 270 pupils, and will require a site of at least 4 acres.

However, some local suburban school boards build schools with from 12 to 16 classrooms to accommodate 420 to 560 pupils. American authorities support this size from the standpoint of administrative efficiency. This size requires a six acre site at least, and sometimes larger sites are sought by developing combined school and park grounds.

Elementary school pupils, should not walk more than half a mile to school.† An area of half mile radius takes in, in the built-up suburbs, about 1,860 families including [at a typical rate of 70 elementary school children per 100 suburban households] 1,300 pupils, and would require several 12-16 room schools.

A secondary school, according to the School Building Manual, needs a minimum enrolment of 250 to 300 pupils, eight to ten rooms, not including shops and other special facilities [p. 47] and an eight-acre minimum site [p. 12]. Again, local suburban boards build larger: a 30 room school or larger, designed to handle 900 to 1,000 students. A 10-12 acre site is desirable and if alignment with a park is possible, a combined site of 35 acres is sought. The maximum service area of a secondary school is less critical and therefore less clearly established than in the case of elementary schools, but a distance of 2-2½ miles is usually regarded as acceptable.

---

*Assuming the recommendations of the Royal Commission on Education are followed.

†The validity of this standard is supported by the Board's survey of suburban residents [The Urban Frontier, Part I, 1963]: out of 47 families with elementary school aged children who lived within half a mile of school, only six complained about the distance; whereas, out of 43 families who lived more than half a mile distant, over half complained about the distance.

Parks

In the typical suburban development there is a need for separate playgrounds for young children, playfields for older children, and parks for passive adult recreation. Some kinds of parks such as sport grounds are essential, other kinds - the ornamental park, the park strip alongside a stream, the pedestrian walk through the subdivision - cannot be prescribed so easily. But if a neighbourhood is to be more than merely a collection of families, each living within its lot, there is a need for several kinds of neighbourhood open space.

In establishing standards for these parks, a usual distinction is between

> Local parks [small playgrounds, sitting-out areas] which should be within easy walking distance for small children and their mothers and older persons;
>
> and district parks designed for more active use [football fields, baseball diamonds, swimming pools, tennis courts, community centres] which, for reasons of cost and their more specialized function, serve a wider area.

The City of Vancouver,* after examining the standards adopted by recreational organizations and cities in Canada, U.S.A. and Britain, recommended a standard of 1.8 acres of local parkland and 1.2 acres of district parkland for every 1,000 people. These standards produce the following park sizes:

> Local parks should be about 5 acres in size [serving 3,000 persons] and include a playground, playfield and quiet landscaped area. At built up suburban densities such a park would serve a population living within a third of a mile.†

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*Technical Planning Board, City of Vancouver, Report on School and Park Standards, October, 1957. We would be the first to acknowledge that more generous standards are available.

†This definition of the area and content of a local park can be criticized as overly rigid and unimaginative: small open spaces need not be 5 acres in size or have a range of facilities to be useful. But our purpose here is not to discuss types of park, only to suggest a measurement of open space need.

> District parks should be about 30 acres [serving 28,000 people] and be equipped with a range of outdoor recreational facilities and perhaps other amenities such as a community centre. A suburban district park would serve the population living up to a mile away.

Fire protection

The Provincial Fire Marshal follows standards for fire protection recommended by the Canadian Underwriters Association and National Fire Protection Association. The Underwriters Association, in turn, is guided by their U.S. counterpart. The latest views of this U.S. body [January 1963] include:

> The standard response distance to residential districts is . . 2 miles for the first-due engine company and . . 3 miles for the first-due ladder company. For sparsely built residential districts with buildings having an average separation of 100 feet or more, the standard . . for both services . . is . . 4 miles. . The above distances are to be reduced if . . streets are narrow or in poor condition, if traffic, one-way streets, topography, or other unusual local conditions hinder response.*

The cost of school, park and fire hall facilities

Later in this report, some calculations will be made of the cost of installing those services directly related to the lot. It can also be generalized that every new suburban lot represents an expenditure of about $65 for the land needed to set up adequate school, parks and fire protection system.† The cost of structures and facilities are much higher: $410 per pupil to build a 16 room elementary school in Burnaby, $840 per pupil to build a 30 room secondary school. A district fire hall, fully equipped, costs around $90,000 which, if it served 12 square miles of compact housing, is equal to $2 per household. Park improvements vary so much, costs are difficult to generalize.

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* National Board of Fire Underwriters, Special Bulletin No.313, N.Y., January 1963. The C.U.A. Standard of Municipal Fire Protection, 1960 recommends shorter distances.

† Assuming that the sites can be bought at a raw land price of $3,000 per acre. When sites are acquired after development is under way this is not always possible.

Other public and private services

This examination of standards is confined to public services basic to the neighbourhood and therefore are important considerations when a residential subdivision is planned. We must also acknowledge that a fully equipped neighbourhood enjoys a much wider range of community services. These include

- services normally a public responsibility which serve large districts or are regarded as a non-basic component of the community: police protection, health clinics, libraries, community centres and public halls, special recreational facilities such as zoos and botanical gardens, public transportation;
- privately or commercially operated services: shops, entertainment and indoor recreation, churches, private schools, medical and other professional services.

Left to themselves these services try to locate as best they can, but a competent planning program will include them in the neighbourhood development plan so they serve the residents well.

IV: REDUCING LOT SERVICING COSTS

This chapter is concerned with the cost of installing services, so a comment should first be made about the unit construction costs that are used in the calculations that follow. Construction costs that can be said to be appropriate for all parts of the region are near-impossible to develop because, for one thing, site conditions vary greatly [clearing costs, for instance, are significant on the North Shore, minor in other places; underground installations also vary widely in cost]; costs also vary with construction techniques and with the standard required by the municipal or other authority. The unit costs applied here are derived from the experience of several private and municipal engineers, but inevitably they constitute a compromise selection. Moreover, these explorations of ways to cut servicing costs follow avenues of possible savings, they do not presume to indicate specifically how much could be saved or at what price a serviced lot can be produced in the Vancouver area. Site conditions could vary construction costs, and financing costs have not been considered at all. Also, as pointed out earlier, market price ceilings and the complexities of the housing industry could shape the price of a serviced lot differently from the total investment [land and services] that had been put into the land.

Four or five years ago, a fairly good, yet typical standard of services required in suburban subdivisions consisted of those items listed below; their cost today for a 66' lot is estimated alongside.

18' wide asphalt road on gravel base, with ditches 40 ft. @ $6.00*	$240	
watermain [6" pipe] 40 ft. @ $4.25	170	
septic tank	300	
	$710	say $700

The previous chapter recommended a considerably higher standard of services than this, and several municipalities in the metropolitan area now require a fairly high standare of services. Using these as models, a fully serviced [66' x 120'] lot may involve the following installation costs if located close to existing trunk lines:

Piped water, 6" main, [excluding cost of pumps and connection charges] 40 ft. @ $4.25	$170	14%
Sanitary sewers [excluding cost of treatment plant and pumphouse] 40 ft. @ $6.00	240	19%
Storm sewers to each lot [12" main, avg. 6-8' deep] 40 ft. @ $8.00	320	26%
28' paved road on high std. gravel base, with extruded curbs 40 ft. @ $11.15	446	36%
4' sidewalk on one side of the street 40 ft. @ $1.40	56	5%
	$1232	say $1250†

For several reasons the cost of services may be more than this calculation, viz:

(1) As already noted, unit costs may be higher, e.g. sewer lines may be needed on both sides of a street, or for other reasons be more expensive

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*40 feet of road and road services is required for each 66 foot lot in an average curvilinear [non-grid] subdivision, allowing for cross-streets with no house frontage.

†As noted early in the first chapter, raw land costs and many other costs must be attached to a lot, such as planning, interest charges, commissions, office overhead and profit to arrive at the retail price of the lot. The $1250 is by no means the full price of a lot.

[sanitary sewers in Surrey and Burnaby cost around $500 a lot to install].

(2) No calculation is included above for sewage treatment plant and pumphouse, nor for water and sewer connection charges*, which, one way or another, must be paid by the home owner.

(3) Municipal regulations may require a higher standard of installation. e.g: a formed concrete curb and gutter might add $85, street light standards would add $50-$65 a lot to these costs.

(4) Engineering and planning adds about 10% to these costs in a subdivision of any size.

Thus, the cost of full services may be lower than $1,250, but they are more likely to be higher: items 3 and 4 alone add about $270.

In short, servicing costs have roughly doubled in the process of bringing suburban lots up to a standard now considered necessary in suburban development. Moreover, these costs only apply if the subdivision is close to existing trunk lines. A comparable lot in a subdivision that is some distance away from trunk sewer and water lines involves more expense, much of which must be paid for by the developer or as a local improvement. Every lot in a remote subdivision would share the extra cost of extending a sanitary sewer trunk main out to the subdivision, and similarly, the extension of a water line is carried out as a local improvement. A developer is also responsible if the drainage system outside his subdivision has to be improved to carry the extra run-off. On the other hand, many classes of road in a municipality are maintained largely as a general municipal expense, so if one of these is improved to carry additional traffic generated by a remote subdivision, only a small fraction of that cost is passed on to the subdivision residents. The main point is that, whoever pays, the remote subdivision involves expenses which do not arise when the subdivision is close to existing facilities.

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*In Surrey, for example, about $100 each.

A lot remote from trunk facilities that is large enough to be partially self-sufficient is also expensive to service even at a minimum standard. A two acre [200' x 440'] lot involves the following servicing costs [assuming surrounding properties are also being serviced]:

Septic tank	$300	
Public water line $\frac{\$3.50}{2}$/ ft. x 200 ft.	350	
Road [20' paving] and ditches $\frac{\$6.00}{2}$/ lin. ft. x 200 ft.*	600	
Cost of water and road services on flankage roads and intersections	65	
	$1315	say $1300

Although it has inferior services, the large semi-rural lot costs as much to service as the suburban lot because of the amount of land involved. For the same reason, such a lot must be far out in the country, where land is cheap, before it can compare in total cost with a small suburban lot.

Reducing the standard of services

However, the owner of a small lot in a sprawl area may not pay much for his property. A 66 foot lot(with a modest) house near Scott Road and Highway No. 10, for instance can cost around $1,000 (with the house on it worth $6,000-$7,000.) In comparison, a serviced lot in the built-up part of Richmond costs from $2,750 to $3,000 to buy, and the typical builder-developer package of lot and house in this area costs from $12,500 up.

Our interest is in lot costs. We have shown that services have doubled in price in recent years, and that the person buying a lot far out from the city pays perhaps one-third of the cost of a lot in a suburban district close to town. For both reasons it is proper to ask whether development costs can be reduced without seriously undermining the standards set up in the previous chapter. As far as services are concerned, only two methods of reducing costs are possible, apart from simply improving the subdivision design. One is to reduce the standard of service. As far as services covered by the $1,250 calculation are concerned, there are few economies which may be made without seriously undermining our previously established standards. Where storm sewers are not necessary, this item, costed at $320 above, can be eliminated; it might also be possible in some instances to install a cheaper storm system, one which collects surface drainage from the gutters of every street rather than from each property, although this is not always permitted by municipal regulations or favoured by engineers. Where there are no storm sewers, curbs are not needed, reducing costs by $25. In short, where conditions do not require storm sewers, servicing costs might be reduced to about $900, but otherwise reductions in servicing costs would be minimal.

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*A saving is possible here if gravel roads are permitted, but this is undesirable from a maintenance view point.

Increasing the number of users

The other direction in which to look for economies is toward a more efficient use of the land. Twenty to thirty percent of land in a residential subdivision is used for roads, the amount depending on the road pattern; the remainder, except for land that is unusable or set aside as open space, becomes residential lots. Thus the only way to gain more lots is by reducing the road right-of-way or the lot dimensions.

Road allowances. By reducing the road allowance width from 66 feet to 50 feet, a considerable saving in land can be made. A 66 foot x 120 foot lot requires 40 lineal feet of road to serve it. Thus:

> a 7,900 sq. ft. lot on a 66 ft. road allowance [66 ft. x 40 ft. = 2,640 sq. ft.] comprises 10,540 sq. ft. or 4.1 lots per raw acre;
>
> while a 7,900 sq. ft. lot on a 50 ft. road allowance [50 ft. x 40 ft. = 2,000 sq. ft.] comprises 9,900 sq. ft. or 4.4 lots per raw acre.*

The resultant saving in development costs is of two kinds: (1) the run of services per lot is slightly less - perhaps a foot or two - because service lines across roads are 50 feet instead of 66 feet; (2) the yield of lots per acre of raw land is higher.

These savings are possible, if, as suggested in the chapter on standards, road allowance widths are varied in accordance with the function of the road. Furthermore, when a comprehensive subdivision plan is prepared that includes a road system designed to serve the neighbourhood and tie in with main thoroughfares, it is sometimes possible to vary road widths from these fixed standards without jeopardizing the function or safety of the road system. It should then be possible to reduce to a minimum the amount of land needed for road allowances.

Lot Dimensions. Most new subdivisions in the Lower Mainland are designed with lots having a width of at least 60 feet and an area of 7,200 square feet, with many municipalities adopting a 66 foot width as standard. While not ignoring the importance, especially from the developer's point of view, of buyers' preferences for large lots, it is worthwhile recognizing that lots on municipal water and sewer services can safely be much smaller than 7,200 square feet, and in fact are smaller in other suburban parts of Canada. Moreover, if smaller lots are less costly to produce, this represents an opportunity to cater to the low-cost house market that is now being missed. The cost of servicing these smaller sized lots, therefore makes an interesting comparison. Services for a 66 foot wide, 7,900 square foot lot at the previously stated standard, cost about $1,250, not including certain supervisory and other charges. Reducing the lot to a 50 foot width and 6,000 square foot area, brings the cost of the same standard of service down to about $1,025 [18% less]. A further drop to a 42 foot width, 5,000 square foot size cuts the cost to about $780 [35% less]. There is one limitation to this form of economy: narrower lots call for narrower, and possibly two storey houses; the ranch style house does not always fit.

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*The total number of lots and the shape of the parcel would also influence the number of additional lots to be gained.

Producing lots for low-cost housing

What opportunities do these economy measures offer the person who cannot afford or does not want a high priced lot, such as the person referred to earlier, who owns a home far out in the countryside worth $7,000-$8,000, of which the lot is worth about $1,000?

To arrive at a quantitative answer requires that we make certain assumptions about the effect on the price of raw land of the various economies discussed. Quite possibly land where small lots [i.e. more lots per acre] can be created will have a greater value than land where lots must be no smaller than 7,900 square feet. If we side-step this whole problem and assume that all raw land costs the same, say $3,000 an acre; regardless of the lot size, then lot costs work out as follows:

(1) 66' x 120' [7900 sq. ft.] lot on 66' road

Land [4.1 lots/acre @ $3,000/acre]	$ 730
Services	1250
	$1980
Engineering, planning, surveying 10%	198
Administration, etc. 10%	198
Wholesale price of lot and services excluding profit, capital finance charges, connection charges, etc.	$2376 say $2375

(2) Reducing the road allowance width from 66' to 50' could reduce these costs by perhaps $100 or 4%.

(3) 50' x 120' [6000 sq. ft.] lot on 50' road

Land [5.7 lots/acre @ $3,000/acre]	$ 526
Services	1025
	$1551
Engineering, planning, surveying 10%	155
Administration, etc. 10%	155
Wholesale price	$1861 say $1850 [a 22% reduction]

(4) 42' x 120' [5000 sq. ft.] lot on 50' road

Land [6.9 lots/acre @ $3,000/acre]	$ 435
Services	780
	$1215
Engineering, planning, surveying 10%	121
Administration, etc. 10%	121
Wholesale price	$1457 say $1450 [a 39% reduction]

These are wholesale prices - profit and other charges have still to be added - so it is apparent that these lots do not compete in price with the remote lot valued at $1,000. Obviously, though, these are a different type of lot to the remote one: they do not enjoy the maximum in surrounding wide open space which the remote lot enjoys, temporarily at least, but they are far better serviced - few improvements will be necessary in the future - and they are closer to the urban centre, and it has been shown that residents value and ultimately demand these services. Certainly from the municipality's point of view they are a more economic proposition and, all things considered, they may be as good a deal or better for the owner as the remote lot.

The construction cost of a 1,200 square foot house in the close-in suburbs now costs $10.47 a square foot to build, according to a recent estimate,* though it might be possible, in the interests of producing low cost housing, to reduce this cost slightly. It is permissible to build an 800 square foot house in North Surrey; if the unit construction cost were $10.00 a square foot, the house would cost $8,000, and if built on a 40 ft. x 120 ft. serviced lot [costing $1,450 + 10% profit = $1,600] the "package" cost would be $9,600. However, this is a very small house. A three bedroom house of minimum room dimensions would have about 1,000 square feet of floor space and cost $10,000 to build. On a 40 ft. x 120 ft. lot, the package cost would be $11,600.

Such an $11,600 home would involve, under N.H.A., monthly payments of over $80-$85, which, according to N.H.A. regulations,† requires the purchaser to earn at least $3,700 a year. According to 1959 Income Tax Return statistics, this excludes half of all income earners in Metropolitan Vancouver. To finance the $9,600 house under N.H.A., the owner would have to earn $3,100 or more a year; this would exclude about one-third of the income earners.

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*See Real Estate and Business Trends, 1962, Vancouver Real Estate Board, p. E-33. This estimate, dated February 1963, is for a three bedroom, 1,193 square foot house, and includes 10% profit and 3% overhead.

†CMHC permits a home purchaser to allocate up to 27% of his earnings to paying for an NHA house. Of course with a second mortgage or by buying his house under a private financing arrangement, he could spend more.

We must conclude that at the present time a low income earner could not buy a serviced lot with a reasonable standard of home on it at prices he would pay for a poorly serviced lot and smaller house in the sprawl areas. [This comparison does not consider other possible expenses involved in living in a sprawl area, such as extra transportation costs, or other improvement and maintenance expenses likely to arise.] Still, there are low cost alternatives to sprawl housing. We do not undertake here the technical task of examining ways in which land development and house construction techniques might be reduced in cost, and we simply acknowledge that a reduction in mortgage interest rates could significantly improve the ability of low-income earners to buy a home.* One observation coming from this particular study and mentioned by several persons involved in land development, is that one form of housing that can be substantially lower in cost is terrace or row housing. This type of dwelling is built in multiple unit blocks - an extended version of the side-by-side duplex. By building several such blocks on a large parcel of land it is possible to keep roads and other services to a minimum and preserve part of the site as open space. The economies of this development come partly from a saving in development costs and partly from the opportunity to make more intensive use of the land than is possible with detached dwellings: ten to twelve terrace dwellings to the acre compared to the customary 4.1 single family dwellings per acre on 66 foot wide lots.

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*It might also boost land prices.

V: THE ULTIMATE ECONOMY

The period of rapid, sporadic subdivision of several years ago created long-term headaches, especially for municipalities. If and when growth accelerates again, it is to be hoped that it will be accompanied by a more conscious, deliberate laying down of conditions under which residential development will take place. To be appropriate, these conditions must take into consideration several needs:

- The need to install an adequate, urban standard of services at minimum cost.

  With a need for a high level of services in both old and new areas, with the housing needs of lower income groups not being met by the private building industry, and with the financial burdens of municipalities already heavy, it is obvious that the processes involved in residential development must operate at top efficiency.

- The need for greater stability and predictability in the land development process.

  This can come by predicting housing demand and thus the amount of land needed for new residential development. The process is not a rigid or one-shot matter, nor should it be overly restrictive: it should estimate the amount of land needed in a municipality for a year or two and decide what parts of the municipality should be developed in that time. What must be avoided is the releasing for development of far more land than immediate demand will use, otherwise development will leap-frog from one place to another, leaving behind near-empty subdivisions, vacant parcels, and services which must operate at well below capacity. No developer can now afford the sporadic development of his land, so from a business viewpoint as well, it is good economic sense to make land development a more predictable, stable process.

- The need to plan the essential features of the neighbourhood.

It is not enough to turn out block after block of housing; neighbourhood facilities - shops, parks, schools, public transportation, community facilities, must be provided for in the initial residential development program.

- The need to avoid as much as possible inequalities in the conditions under which developers work.

  Haphazard growth and changes in municipal standards governing development have resulted in one developer having to work under more onerous conditions than another. This may be unavoidable to a certain extent, and certainly the conditions of development should not be the same everywhere, but there is need for a more coherent framework of development policy within which each developer works. This raises the question of differences in servicing requirements between municipalities. Here too, the objective is not to have a single set of standards for all metropolitan municipalities, but to be sure that the quality of development throughout the metropolitan area is suited and adequate to handle future growth.

This report has tried to look at the residential land development process as a whole, so it is logical to suggest now that development will improve significantly only if economies are sought at all levels of the process. The potential economies suggested by this study apply to three of these levels.

(1) The subdivision: Adequate but flexible standards

In discussing servicing standards, we have referred to both the quality and the number of services needed in a neighbourhood. It should further be recognized that while rigid standards can avoid the worst, they do not necessarily achieve the best or the most economical development. To a certain extent, at least, every site has features which require special treatment and offer particular advantages - e.g. in the form of improved design or economical servicing - if they are exploited properly. Subdivision regulations can stifle imaginative, intelligent subdivision layout and development. To avoid this, they must have a degree of flexibility and must be intelligently and imaginatively administered.

(2) The neighbourhood: Avoiding piecemeal growth

If the services which accompany urban growth function well they operate as a system - a road system, a school district, a water system, a service area of a shopping centre. Each system is designed to serve the existing and future needs of its area. A well engineered water system, for example, will be extended in accordance with a plan that anticipates the needs of an area as it builds up over several years; a good road system will be designed to discourage future heavy traffic movement through residential neighbourhoods.

The opposite approach to building new services is to meet needs as and where they become obvious, and leave future needs to be met when they arise - about the most costly method possible. Piecemeal installation of services in a district - e.g. the paving of roads when the housing is well established followed by sewers sometime later and sidewalks later still - involves various extra costs: workers must tear up existing facilities in order to install improvements; the job is not straight-forward because shrubbery and fences have to be removed or worked around and later replaced; and workers have to spend time each day making the street safe for residents to use. None of these expenses arise if services are installed when the subdivision is first laid out.

The best and simplest way of achieving economic development is to work out in advance a blueprint of the form of the residential area and the services it will require. This plan estimates total need when development is complete and designs the capacity of the services accordingly. Moreover, by considering in the plan all the services required, it is possible to anticipate the effect of one service on another - how the location of the school or local shopping area, for example, will influence the location of the collector streets or the number of sidewalks needed.

Neighbourhood planning is equally worthwhile from a social viewpoint. Whether composed of one or several subdivisions, the neighbourhood is a small community which should provide its residents with certain local services, and which, through its layout, should always be a pleasant, safe place to live, with no danger of being disturbed or divided by an expressway or obnoxious industry. The zoning by-law, as the legal document that restricts the uses of private land gives protection, but it cannot be used to work out the general plan of the neighbourhood. It will not, for example, ensure that the school is near a park and away from the highway, or that the shopping area is properly located to serve the residents. This is the job of the neighbourhood plan, which must precede the zoning by-law; in fact, new building can take place so rapidly, the neighbourhood has a poor chance of making an appearance unless a plan is worked out before ground is broken. Perhaps it should also be emphasized that this is not a subdivision plan prepared by the developer; it is a plan for the whole neighbourhood, which the subdivision will form part of, and it can be prepared only by the municipality.

(3) Municipal and intermunicipal: Meeting ultimate need

Most neighbourhood services have to be dovetailed with the service systems which extend across the whole built-up municipality and even link up with services in other municipalities. The road network and public water supply are obvious examples. An obvious fact of municipal life is that these services cost less when they are extended in a logical, coherent manner, and this is possible only if they are installed in accordance with plans designed to satisfy ultimate or long-term municipal needs, and based on engineering principles for the economic extension of services.

To put these plans in effect, a municipality must accept one, and usually two responsibilities.

(1) It must predetermine the general conditions and location of development: it must say fairly precisely where the next areas of new growth will be.

(2) The municipality should probably install the main or trunk facilities to those areas to ensure that development actually follows the plan, and to demonstrate that the municipal policy has the vigour and "teeth" to achieve its objectives.

For several lesser reasons as well, the installation of trunk services is a logical municipal responsibility. First, residential services into new suburban areas must in most cases be an extension of, or an adjunct to the municipal system. It is not possible to permit small independent systems servicing a single subdivision - sewers for example - to be set up without anticipating in their design that they will shortly be tied in with the larger municipal system. Nor can isolated subdivisions expect to tap into a municipal facility - a water line or even a road - that is incapable of sustaining extensive suburban growth. Responsibility of a municipality for extending the skeleton of essential services must be strong enough that it can postpone development of any area which, from the point of view of services, is premature.

Second, municipal responsibility for installing trunk services as part of a comprehensive scheme enables installation costs to be spread evenly among a large area of users instead of requiring residents of a particular subdivision to bear the cost of servicing in their own area.

Third, a trunk system of roads, water, sewer, etc. constructed by the municipality will provide a general servicing framework within which each private developer has a relatively equal responsibility to install local services.

This placing of responsibility on the municipality for evolving the main plan and structure of residential development carries the important implication that the municipality must be prepared to make residential development conform to its program for extension of services, not the other way round. This would regulate development more strictly than now occurs, but such restraint must come if more orderly, economic development is to take place.

The summary observation of this whole report, then, is a simple and obvious one: if major improvements in the cost and quality of new suburban areas are to be realized, a more careful preparation for this growth must be reflected in subdivision plans and regulations, in neighbourhood planning and in municipal development and servicing policies.

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